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## A Study to Evaluate the Efficacy of Panchaprasritiki Basti in Parkinsonism

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### ABSTRACT

Acharyas have appreciated Basti as a unique form of treatment modality. It can be easily performed in all the age group persons; whereas other *Shodhana* procedure cannot be performed. Basti karma is the best choice of treatment for Vata dosha and Vata associated with *Kapha* and *Pitta*. *Vata* is responsible for *Gati Gamana*, which is required for *Shareera Vyapara*. *Charaka* specifically gives importance to treat the *Sthanika Dosha* first then *Sthanantara dosha*. *Pakwashaya* is said to be the main seat of *Vata dosha*. Adopting treatment modality like *Basti Karma* will help in bringing *Vata* into its normalcy. Hence, it is to be considered as one of the suitable treatments for diseases of *Vata dosha* predominance; supporting to this *Vagbhata* says it as “*Ardha chikitsa*”.

Parkinsonism is the most common form of a group of progressive neurodegenerative disorder characterized by the clinical features including bradykinesia, rest tremor, muscular rigidity, shuffling gait and flexed posture.

Prevalence of Parkinsonism is about 0.3% of the whole world population in industrial countries and is more common in elderly and prevalence rises from 1% in those over 60 years of age to 4% of the population over 80 years.

Parkinsonism can be understood by term to *vatavyadhi* (*avaranvatavyadhi*). *Panchaprasrutiki basti* mentioned in *charaka samhitha sidhi stana* mentions its *phalasarithi* as *vatagna* and *balavarana krutha*. So this study was taken up to manage Parkinsonism in better way in low cost.

### KEYWORDS

*Vatavyadhi, Parkinsonism, Panchaprasrutiki basti, Avaranvatavyadhi, Bastikarma*



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## INTRODUCTION

Parkinsonism disease is characterised by tremors, bradykinesia and postural instability are the hallmarks of the disease. The motor disturbance also results in diminished facial expression and decreased rate of blinking. The second important manifestation is the stiffness and rigidity so that the person encounters raised resistance when attempting to move a limb and a joint. The third manifestation is a tremor that may be quite asymmetrical, occurring in one hand, or may involve both hands and the trunk. As the disease progresses, problems with balance become quite limiting, and falls may occur frequently. Alternatively, with disease progression, episodes of freezing may occur, during which voluntary movement becomes almost impossible. Finally, some individuals suffer from dementia, which appears to be an integral part of Parkinsonism process. The basic pathologic change is degeneration of a group of nerve cells deep within the centre of the brain in an area called substantia nigra. These cells use Dopamine as their neurotransmitter to signal other nerve cells. As these cells degenerate and, stop functioning, dopamine fails to reach the areas of the brain that affect motor functions. From the scientific point of view Parkinsonism is of interest because of the

insight it gives into the process involved in translating thoughts and intentions into the appropriate actions of their clear expression. It produces a number of behavioural changes stemming from a disruption of the brain mechanisms that mediate these processes<sup>1</sup>.

This is the most common akinetic rigid syndrome. PD affects 1% of adults over the age of 60 years with increasing in elderly age group. Parkinsonism disease affects both the sexes equally.

Therapy for Parkinson's disease is aimed at replacing dopamine. Since the blood brain barrier prevents dopamine from entering the brain from blood stream, a precursor of dopamine (L-dopa) that will enter the brain is given. Parkinsonism remains the only neurodegenerative disorder that has demonstrated significant responsiveness to therapeutic intervention. However, the treatments which are present now have a little evidence that this treatment changes the course of disease<sup>2</sup>.

According to Ayurveda, Parkinson's disease can be considered under *Vata Vyadhi (Charaka)*. In *Charaka Samhita* and *Sushruta Samhita* cluster of symptoms like *Kampa* (tremor), *Stambha* (rigidity), *Chestas anga* (bradykinesia), *Vakvikriti* (disturbance in speech) etc. were described in different context. Majority of the symptoms of



Parkinsonism were found in *Kaphavrita Vyana, Pranavrita samana, Udhanavruta vyana*. Even so no single *Avarana* process completely covers all symptomatology of Parkinsonism. In *Kaphavruta vyana* initially *Kapha* acts as *avaraka* and *vyana vayu* acts as *avrita* or *avariya Kapha* obstruct the functions and functional channels of *vata*. Therefore, in the initial stage of condition, as the *avaraka* i.e. *kapha* is strong and *vyana vata* is nearly in the normal state, in the beginning, there will be decrease in the functions of *vyana vata* with increase in the function of *avaraka*. Hence In initial stage of Parkinsonism *Kapha vruddhi lakshanas* like *sthira, guvrava, alasya, tandra, vata kshaya lakshans* like *mandha chestata, alpavak, apraharsha, Mudasanjyanta*. Thereafter, when obstruction is complete, it leads to the *prakopa* of *vata* resulting in the manifestation of *vata* vitiation symptoms as well as its disorder. So in the later stage *Vata vruddhi lakshana* and *Kapha avruta vyana lakshans* can be seen in Parkinsonism like *kampa*(tremor), *anaha, shakrudgraha* (Constipation), *bala bramsha*(loss of energy), or *alpa bala* (*utsaha hani*), *nidra bramsha* (loss of sleep), *indriya bramsha, brama, sthambha* (rigidity), *gati sanga* (bradykinesia) and *gati adhika* (increased movements),

*gourava*(heaviness), *ruja*(pain), *twak parushya*

As above Parkinsonism is consider as *vataja nanatmaja vyadhi* and the main site of *vata* is *pakwashaya*, so here in this study *basti* is selected prime mode of treatment of *vata*,

*Panchkrutiki basti* being a *yapana basti* acts as *shodhana* as well as *brumhana* and has *phalshruthi* as *Vatahara* and *Balavarna karam*. So here in this study acts in both pathology of Parkinson's disease like *neurodegeneration* in the brain & pathology which is pertaining to intestinal gut. *Panchprasrutiki basti* also improves *Agni* and relives *vibhandha, sadyobalajanana, balya, dipana. Brumhana, balavarnakara, nirupadrava, vrushyatama*, and acts as *rasayana* and even cost effective.

Keeping all the above aspects in mind the above study has been considered.

## OBJECTIVES

- To evaluate the efficacy of Panchprasrutiki basti in Parkinsonism clinically.

## MATERIALS AND METHODS

### SOURCE OF DATA[FOR CLINICAL STUDY]

#### STUDY DESIGN



This in an open clinical study with pre-test and post-test design wherein minimum of 20 patients diagnosed as Parkinsonism of either sex will be selected. All patients fulfilling the inclusion criteria will be subjected to Panchaprasritiki niruha Basti. A minimum of 20 patients diagnosed, as Parkinsonism was taken for the study from In-patient/out-patients department of “Shree Dharmasthala Manjunatheshwara Ayurveda Hospital” Udupi.

#### METHOD OF COLLECTION OF DATA

It was a clinical study to evaluate the efficacy of Panchaprasritiki Basti in Parkinsonism, where in patients of either sex was selected.

A detailed proforma was prepared considering all points pertaining to history, signs, symptoms and examinations as mentioned in our classics and allied sciences to confirm the diagnosis.

#### DIAGNOSTIC CRITERIA

Patients was diagnosed on the criteria of – Movement disorder society- sponsored revision of the Unified Parkinson’s disease rating scale (MDS-UPDRS) Scale presentation and clinimetric testing result

#### INCLUSION CRITERIA

1. Patients fulfilling the criteria of diagnosis of Parkinsonism.
2. Patients who are fit for *niruha basti*.

3. Patients who are aged between 40 to 70years who are diagnosed as Parkinsonism was taken up for the study.

#### EXCLUSION CRITERIA

1. Patients unfit for *niruha basti* and *anuvāsana basti*.
2. Secondary Parkinsonism, brain tumor, Parkinson’s plus syndrome.

#### DURATION OF STUDY

- Duration of treatment:8 days
- Duration of follow up:16days
- Total duration of study: 24days

Here patient had the symptoms of bradykinesia, chronic constipation in maximum number of patient masked face, change in voice and freezing gait was seen in maximum number of patient.

#### INTERVENTION

##### PANCHAPRASRITIKI BASTI<sup>3</sup>

क्षीरादद्वौ प्रसृतौ कार्ष्णौ मधुतैलघृतात्त्रयः।

खजेन मथितो बस्तिर्वातघ्नो बलवर्णकृत्॥४॥cha. Si. 8/4

#### POORVA KARMA

##### PREPARATION OF THE MEDICINE

The *Panchaprasritiki niruha basti* contains ref (cha.si.8/4)

Table-1 ingredients of *basti*

Table 1 Ingredients of *basti*

Ingredients	Quantity	Apporcimation
Madhu	1 prasrutha	Aproximately 100ml
Lavana	5gms	
Moorchita gritha	1 prasrutha	Aproximately 100ml
Moorchita taila	1 prasrutha	Aproximately 100ml
Ksheera	2 prasrutha	Aproximately 200ml



Figure-1- Prepared *basti*

#### PREPARATION OF PATIENT

- *Sthanika abhyanga*: with *moorchitha tila taila*.
- *Sthanika swedana*: *nadi sweda* with *ushnajala*

*Anuvasana basti* with *Moorchitha tila taila* (60ml)

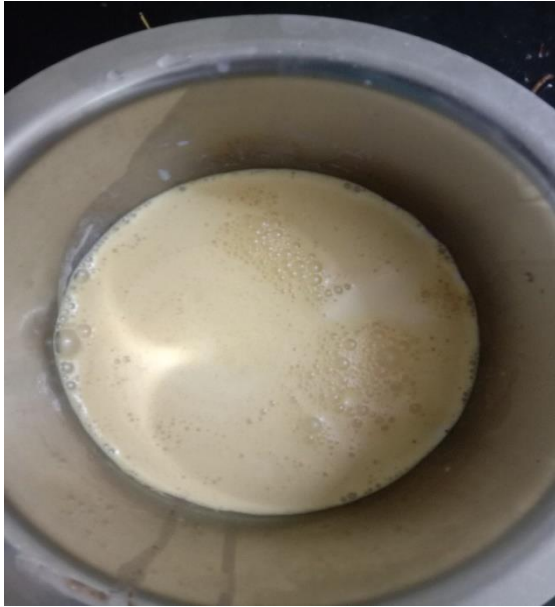


Figure 1 Prepared basti

#### ANUVASANA BASTI

##### POORVAKARMA

- Patient was advised to void his urges.
- *Stanika snehana* and *swedana* was given.
- Patient was advised to have *laghu ahara* soon after *stanika snehana* and *swedana*
- *Moorchitha taila* 60ml taken in a vessel and warmed on hot water tub
- Then *Sneha* is filled in *putaka*

##### PRADHANAKARMA

After *poorvakarma* patient is advised to lie on *droni* in left lateral position flexing his/her right knee and extending his left knee, left hand of patient should be kept beneath his head. *Anuvasana basti* should be administered before patient washed hand dies up (*ardrapani*) as said by Charaka. Anal region is smeared with oil and even *basti putaka* is smeared with oil. slowly inserted into anal canal and basti is administered.

Five *matrabasti basti* with *moorchithatila taila* in a dose of 60ml on 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> day is given in the afternoon immediately after food

##### PASCHAT KARMA

- Avoidance of *asta mahadoshakara bhavas*.
- *Ushna, laghu, anabhishtandhi bhojana*.

##### NIRUHA BASTI

##### POOVAKARMA

- Patient was advised to void his urges.
- *Stanika snehana* and *swedana* was given.
- Patient was advised to be in empty stomach after *stanika snehana* and *swedana*  
*समीक्ष्य दोषोषधदेशकालसात्म्याग्निसत्त्वादिवयोबलानि*  
*बस्तिः प्रयुक्तो नियतं गुणाय स्यात् सर्वकर्माणि च सिद्धिमन्ति*||६||cha.si.3/6<sup>4</sup>
- After considering *desha dosha kaala satmya vaya bala* etc. patient was advised to take basti. Niruha basti was



given in empty stomach whereas anuvasana basti is administered after meal.

- Patient was advised to void his urges.
- Stanika snehana and swedana was given.
- Patient was advised to be in empty stomach

Patient was advised to lie on *droni* in left lateral position flexing his/her right knee and extending his/her left knee. Left hand of the patient should be kept beneath his/her head.

### PRADHANA KARMA

It has 3 parts

- *Basti pranidana*
- *Basti pratyagamana*
- *Lakshana* of *samyak, ayoga, atiyoga*

With the help of proper *basti netra* present in *basti yantra*, *basti drava* was injected into the rectum of the patient. At the time of drug administration patient were asked to take deep breath. After accomplishment patient was advised to be in left lateral position for some time, then they are brought to supine position. After certain time *basti dravya* were expelled out.

### PASCHAT KARMA

- After *samyak yoga* patient was advised to take rest.
- After expulsion of *basti* patient was advised to take bath in luke warm water.

Patient were advised to avoid *astavarjakara bhava*

### ASSESSMENT CRITERIA

- *Samyak niruda lakshanas* was assessed daily after the administration of *basti*.
- The results were assessed on the basis of signs and symptoms of Parkinsonism before and after treatment i.e, on 8th and 24th day after administration of *basti*.

### SUBJECTIVE PARAMETERS

- Symptoms of parkinsonism
- Symptoms of *samyak niruda lakshanas*

### OBJECTIVE PARAMETERS

- Neurological mapping

### INVESTIGATIONS

- Routine blood investigations.
- CT – scan, MRI [if needed for differential diagnosis]

### OBSERVATION

In the present study the effect of Panchprasritiki basti was studied on 20 patients suffering from Parkinsonism, fulfilling the inclusion criteria. During the study, the observations were made before treatment, after treatment and after follow up.

No. of patient registered for the study- 20

No. of patient completed the study - 20





No. of dropouts

- 00

Patient observation is discussed in table 2.

**Table 2** Observations of patient

Parameters	Observation in each parameters	Maximum number of patient	Percentage
<b>Age</b>	40 to 50 years of age	01	5%
	50 to 60 years of age	15	75%
	60 to 70 years of age	04	20%
<b>Sex</b>	Male patient	11	55%
	Female patient	09	45%
<b>Religion</b>	Hindu	16	80%
	Muslim	02	10%
	Christian	02	10%
<b>Education</b>	Uneducated	06	30%
	Up to School	03	15%
	Graduation	11	55%
<b>Marital status</b>	Married	20	100%
	Un married	00	00%
<b>Socioeconomical status</b>	Lower middle class	11	55%
	Upper middle class		
	Upper class	08	40%
<b>Desha</b>	Anupa Desha	15	75%
	Jangala Desha	01	5%
	Sadharana Desha	04	20%
<b>Occupation</b>	Homemaker	09	45%
	Strain less job	02	10%
	Sedentary	09	45%
<b>Co-existing Morbidity</b>	Hypertension	07	35%
	Diabetes mellitus	03	15%
	Hypothyroidism	01	5%
	None	09	45%
<b>Kampa</b>	Present	14	70%
	Absent	06	30%
<b>Chesta hani</b>	Present	17	85%
	Absent	03	15%
<b>Stamba</b>	Present	16	80%
	Absent	04	20%
<b>Vak vikruthi</b>	Present	10	50%
	Absent	10	50%
<b>Nidrabhanga</b>	Present	17	85%
	Absent	03	15%
<b>Gatisanga</b>	Present	18	90%
	Absent	02	10%
<b>Vibanda</b>	Present	19	95%
	Absent	01	05%
<b>Vishadha</b>	Present	18	90%
	Absent	02	10%
<b>Smarana hani</b>	Present	08	40%
	Absent	12	60%

## DISCISSION

Parkinsonism disease is progressive neurodegenerative disease which is

characterised by tremors, bradykinesia and postural instability are the hallmarks of the disease. The motor disturbance also results





in diminished facial expression and decreased rate of blinking. Any type of injury to substantia nigra may cause Parkinsonism.

In Ayurveda parkinsonism is understood under the heading of Vatavyadhi due to its symptoms like *Kampa*(tremor), *Stambha*(rigidity), *Chestasanga* (bradykinesia), *Vakvikriti* (disturbance in speech) etc. In specific Parkinsonism can be understood under the *Avarana* of vatavyadhi. Majority of the symptoms of Parkinsonism were found in *Kaphavruta Vyana*, *Pranavruta samana* and *Udhanavruta vyana*. A single avara does not completely covers all symptomatology of Parkinsonism.

In this study most of the cases were diagnosed with *kaphavrutha vyana vata vyadi* where in *Kapha vrudhi lakshanas* like *sthira*, *guvrava*, *alasya*, *tandra* and *vata kshaya lakshans* like *mandha chestata*, *alpavak*, *apraharsha*, *Mudasanjyanta*. Thereafter, when obstruction is complete, it leads to the *prakopa* of *vata* resulting in the manifestation of *vata* vitiation symptoms as well as its disorder. So in the later stage *Vata vrudhi lakshana* and *Kapha avruta vyana lakshans* can be seen.

By screening the literature it can be found that this *Panchaprasrutiki basti* not only pacifies the vitiated *vata* but also provides *bala* and *varna*.

## PLAN OF STUDY

The patient were selected for the study from IPD and OPD of SDMAH, Udupi, 20 patient fulfilling inclusion criteria .

- Total number of patient registered to the study-20
- Completed -20
- Drop-out-0

## CLINICAL STUDY

A clinical study was conducted on patients suffering from Parkinsonism. Patient were selected randomly fulfilling the inclusion criteria. In this study *panchprasritiki basti* was administered as *yoga basti* course. On 1<sup>st</sup> , 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> day *anuvasana basti* was given with 60ml of *Moorchita tila taila* and on 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> day *Panchaprasritiki niruha basti* was given. The following observation were made.

## DISSUCUSSION ON OBSERVATION:

### 1. INCIDENCE ACCORDING TO SEX

This study contain 11 male patient i.e 55% and 9 female ptient i.e 45%.

### 2. INCIDENCE ACCORDING TO AGE

In this study 5% of paitent lie in between 40 to 50 years of age.

75% of patient lie in between 50 to 60 years of age.

20% of patient lie in between 60 to 70 years of age group.



### 3. INCIDENCE ACCORDING TO RELEGION

Maximum number the patients were hindu i.e 18 (80%), 2 were muslim and 2 were christian i.e 10% each.

### 4. INCIDENCE ACCORDING TO EDUCATION

In this study 6 patients were uneducated (30%) , 3 patient had education primary school education (15%) and 11 patient were graduated (55%)

### 5. DISTRIBUTION ACCORDING TO MARITAL STATUS

All the patient who were subjected to this study were married.

### 6. INCIDENCE ACCORDING TO SOCIOECONOMIC STATUS

In this study most of the patients were from lower middle-class family (55%), followed by upper middle class (40%) and 5% patient belong to upper class family.

### 7. INCIDENCE ACCORDING TO DESHA

In this study most of the patient belong to anupadesha i.e. about 75% because our hospital is in Udupi district and most were resident of rural and urban, 20% patient belong to sadharana desha and 5% patient belong to jangaladesha

### 8. INCIDENCE ACCORDING TO OCCUPATION

In this study 9 were female and all 9 patients were homemaker 45%, 10% were

had patient were had strain less occupation i.e. retired, rest 9 patient had sedentary occupation

### 9. CO-EXISSTING MORBIDITY

In this study 35 % patient had hypertension, 15% of patient had diabetes mellitus, 1 patient had hypothyroidism and rest 45% of patient did not had any co-existing morbidity

### 10. DISTRBUTION OF PRESENTING COMPLAINTS

➤ Among 20 patients 14 had *kampa* i.e 70%, 17 patient had *chestahani* as one of the presenting complaint, 16 patient had *stamba* as one of the presenting complaints. 10 patient had *vakvikruthi* as presenting complaints, but among all 20 patients excluding these 10, rest had changes in speech modulation. Most of the patient had *Vinamaya* i.e. 85% as one of the presenting complaints.

➤ In this study most of patient had disturbed sleep i.e 85% complain of disturbance in sleep, like reduced period or interrupted sleep due to dreams.

### 11. CONSTIPATORY BOWEL HABIT

In this study among 20 patients, 19 patients had constipatory bowel habits, where in many studies have proven the constipation is one of the prime cause of Parkinsonism. Here most patient had hard stools,



incomplete evacuation, even had bowel habit once in 2 days.

➤ 18 patients had *gatisanga* i.e freezing of gait (90%) rest 2 patient had changes in their gait.

➤ In this study most of the patient had *vishada* i.e. 90 % of them had.

➤ Among all 20, 8 patients had *smarana hani* as presenting complaints. In this study patient needed time to remember past incidence, even care taker used explain the same about the patient.

➤ Among 20 patients 1 patient was vegetarian rest all patients were having mixed diet, as most of the patient were resident in and around Udupi, they had habit of having fish regularly

## 12. INCIDENCE ACCORDING TO PRAKRUTHI

In this study of 20 patients most were *kapha-vata prakruthi* i.e. 75%, 15% were *pitta kapha prakruthi* and 10% were of *vata pitta prakruthi*.

➤ In this study among 20 patient, 19 patients were on levodopa and remaining one was not diagnosed properly before and he was symptomatically treated for pain in back.

## DISSCUSSION

In this study patient were assessed with **Movement Disorder Society- Unified**

## **Parkinson's Disease rating Scale (MDS-UPDRS).**

➤ In this scale patient were analysed under 4 heading i.e.

Part 1- Non motor experiences of daily activity

Part 2- Motor experiences of daily leaving

Part 3- motor examination

Part 4-Motor complication

➤ Part 1 consist of cognitive impairment, hallucination and psychosis, depressed mood, anxious mood, apathy, features of Dopamine dysregulation syndrome, impairment in sleep, pain, constipation problem, light headedness on standing and fatigue.

➤ Test used for this assessment criteria was "Wilcoxon sign rank" test

❖ Highly significant result was seen in cognitive impairment, depressed mood, anxious mood, sleep impairment, pain, and constipation.

❖ Significant results were seen in symptoms like fatigue and urinary problem.

❖ Non-significant results were seen in dopamine dysregulation syndrome and light headedness on standing symptom.

➤ Part 2 consist of speech impairment, symptoms like excess salivation and drooling, chewing and swallowing, eating task, dressing and hygiene, impairment in doing hobbies and other activities, turning



in bed, tremor, getting out of bed, walking and balance, freezing.

❖ Highly significant results were seen in hand writing skills.

❖ Highly significant results were seen in tremor, walking and balancing, freezing.

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➤ Part-3 consist of speech modulation, facial expression, rigidity, gait, bradykinesia, kinetic tremor and rest tremor.

❖ There was highly significant changes seen in masked face, rigidity were reduced

❖ Improvement were seen in action of arising from chair, gait, much improvement in freezing gait reduced frequency of freezing gait)

❖ There were improvement in bradykinesia.

➤ Part-4 consist of time spent in dyskinesia, functional impact on dyskinesia, time spent in off state, functional impact of fluctuation, complexity of motor fluctuations and painful off state dystonia.

❖ There were satisfactory changes in the above said symptoms.

### DISCUSSION OF BASTI

• It has been observed that, number of evacuation is not same in all the patient.

• In *niruha basti* minimum number of evacuation was 1 and maximum number of evacuation was 7.

• Maximum time of retention of *niruha basti* 25 minutes, minimum time of retention is 1 minute. Maximum retention of *anuvasana basti* is 15hr 20min, minimum time of retention is 15 minutes.

• No complication was observed.

### DISCUSSION ON UNDERSTANDING CONCEPT OF PARKINSONISM IN AYURVEDA

Understanding of Parkinsonism disease in terms of *Ayurveda* can be done under the *vatavyadhi*, to be specific, caused due to the *Avarana* pathology.

According to *Ayurveda*, Parkinsonism disease can be considered under disorder of *Vata* (Charaka). In Charaka Samhita and Sushruta Samhita cluster of symptoms like *Kampa*(tremor),*Stambha*(rigidity),*Chestas anga* (bradykinesia),*Vakvikriti* (disturbance in speech) etc. were described in different context. Majority of the symptoms of Parkinsonism disease were found in *Kaphavrita Vyana*, *Pranavrita samana* and *Udhanavruta vyana*. Even so no single *Avarana* process completely covers all symptomatology of Parkinsonism disease.

In *Kaphavrita vyana* initially *Kapha* acts as *avaraka* and *vyana vayu* acts as *avrita* or *avariya* *Kapha* obstruct the functions and functional channels of *vata*.



Therefore, in the initial stage of condition, as the *avaraka* i.e. *kapha* is strong and *vyana vata* is nearly in the normal state, in the beginning, there will be decrease in the functions of *vyana vata* with increase in the function of *avaraka*. Hence In initial stage of Parkinsonism disease *Kapha vrudhi lakshanas* like *sthirya, guvrava, alasya, tandra, vata kshaya lakshans* like *mandha chestata, alpavak, apraharsha, Mudasanjyanta*.

Thereafter, when obstruction is complete, it leads to the *prakopa* of *vata* resulting in the manifestation of *vata* vitiation symptoms as well as its disorder. So in the later stage *Vata vrudhi lakshana* and *Kapha avruta vyana lakshans* can be seen in Parkinsonism disease like *kampa*(tremor), *anaha, shakrudgraha*(Constipation), *bala bramsha*(loss of energy), or *alpa bala (utsaha hani)*, *nidra bramsha* (loss of sleep), *indriya bramsha, brama, sthambha* (rigidity), *gati sanga* (bradykinesia) and *gati adhika* (increased movements), *gourava*(heaviness), *ruja*(pain). *Twak parushya*.

## SELECTION OF PANCHAPRASRUTHIKI BASTI IN PARKINSONISM

Long standing history of constipation is seen in all patient in this study.

Parkinsonism have found characteristic signs of the disease in intestinal nerve cell.

**Constipation**, frequency of micturition and nocturia and mild to moderate degree of orthostatic hypotension may occur as symptoms of Autonomic dysfunction. Antiparkinsonian medication aggravate orthostatic hypotension.

Gastrointestinal dysfunction is a prominent manifestation of Parkinson's disease (PD). Gastrointestinal symptoms in PD include dysphagia, impaired gastric emptying, constipation, and defecatory dysfunction. Constipation may precede the development of somatic motor symptoms of PD for several years. Neuropathological studies show early accumulation of abnormal alpha-synuclein ( $\alpha$ -SYN) containing inclusions (Lewy neurites) in the enteric nervous system (ENS) and dorsal motor nucleus of the vagus (DMV) both in PD and in incidental Lewy body disease (ILBD). These findings provided the basis for the hypothesis that  $\alpha$ -SYN pathology progresses in a centripetal, prion-like fashion, from the ENS to the DMV and then to more rostral areas of the central nervous system.

By considering these hypotheses it reveals the relationship of enteric nervous system, brain and Parkinsonism disease. The enteric nervous system has been described as a "second brain" for several reasons. The enteric nervous system can operate autonomously. It normally communicates



with the central nervous system (CNS) through the parasympathetic (e.g., via the vagus nerve) and sympathetic (e.g., via the prevertebral ganglia) nervous systems. However, vertebrate studies show that when the vagus nerve is severed, the enteric nervous system continues to function.

The enteric nervous system also makes use of more than 30 neurotransmitters, most of which are identical to the ones found in CNS, such as acetylcholine, **dopamine**, and **serotonin**. More than **90% of the body's serotonin lies in the gut, as well as about 50% of the body's dopamine**, this is currently being studied to further our understanding of its utility in the brain.

ENS is known as the "brain of the gut," because of its similarities to the CNS, researchers have been using colonic biopsies of Parkinsonism patients to help better understand and manage Parkinsonism disease. Parkinsonism patients are known to experience severe **constipation** due to GI tract dysfunction years before the onset of motor movement complications, which Parkinson's disease is notorious for.

Impaired functioning of colon leads to irregular bowel movements and lack of defecation, faecal wastes start accumulating the colon. Digested and undigested food from the stomach travels to the small intestines. Here, only nutrients from the

food we eat are absorbed in the small intestine and rest of the food matter containing dead cells, unhealthy or dead microbes and other harmful bi-products then move on to the large intestine or colon. However, if these wastes are not removed from the body on daily basis, they began to putrefy and material load starts to build up and in no time<sup>5</sup>.

Our colon is filled with toxic substances. Certain unhealthy bacteria and microbes flourish in these waste products which will undoubtedly cause harm to our body eventually, *Pancharasrtiki basti dravya* which is introduced into the rectum may act by stimulating peristalsis either because of their large volume or they cause osmotic retention of water in the bowel. The *niruha* therapy along with its therapeutic effects shows cleansing effect on the colon. Cleansing of colon could dilute the toxin concentration in the cecum and facilitate the removal of same. Thus, it reduces stagnation and subsequent bacterial proliferation in large intestine and maintains harmony of the intestinal flora in promoting optimal colon health.

क्षीराद्द्रौ प्रसृतौ कार्यौ मधुतैलघृतात्त्रयः।  
खजेन मथितो बस्तिर्वातघ्नो बलवर्णकृत्॥४॥

Basti of this recipe pacifies Vayu, and promotes strength as well as





complexion.. On the basis of earlier given classification, it can be considered under:

- *Mrudhu basti*
- *Ksheera basti*
- *Bala varna kara basti*
- *Madhutailika basti*
- One Among *prasrutayogiki basti*
- *Vataghana basti*
- *Rasayana basti*
- *Shodhana* as well as *Shamana*

Even this basti is cost effective. So this basti was selected for the study.

## RESULTS

- There was statistically highly significant result found in masked face i.e. dullness seen in the face was reduced, features of expression less face was reduced.
- Patient had improvement in frequency of freezing gait and had statistically highly significant result.
- There was improvement seen in bradykinesia even had statistically highly significant result.
- There were improvement in constipatory bowel habit i.e most of the patient did not had the symptoms of hard stools, ang incomplete evacuation. Statistically had highly significant result.

Hence we can conclude that panchrasruthiki basti has shown its effect as vatagna and bala varna kara in this study

## CONCLUSION

*Shodana* aims at removal of the causative factors of somatic and psychosomatic disease. The process involves internal and external purification. The process involves internal and external purification. *Basti* is one of the *shodhana* procedure. Acharya have considered basti as prime mode of treatment for *vata dosha*.

As parkinsonism was considered as one of the *vatajananatmaja vyadhi*, *basti* was selected as line of treatment for this study.

- Maximum numbers of patients were seen in the age group of 51-60 years.
- Majority of the patients were found having a long standing history of constipation i.e. hard bowel habit, incomplete evacuation and even found many did not had regular bowel habit.
- Majority of the patients were males i.e 11 were male and rest were female (all are homemakers)

Features like *kampa*, *gatisanga*, *Vakvikruthi*, *vibanda* and masked face were seen in maximum number of patients.

As observed in basti retention period was not same in all patients, even the number of





evacuations was not the same and there was no complication observed.

As observed, there were improvement in symptoms like bradykinesia, freezing gait, and there were drastic changes in masked face, reduction in rigidity.

By the above we can conclude that *panchprasrutiki basti* that acted as *vatagna* and *balavarnakara* as mentioned in the sloka.

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